

IN THE CLAIMS:

Please CANCEL claims 2, 4 and 15-25 without prejudice to or disclaimer of the recited subject matter.

Please AMEND claims 1, 3, 8 and 11, and ADD new claims 26-40, as presented in the accompanying substitute specification. Please note that all claims currently pending in this application are reproduced in the substitute specification for the Examiner's convenience.

WHAT IS CLAIMED IS:

1. (Currently Amended) A pipe structure comprising:

WY BY
a double pipe having a resin inner pipe and a resin outer pipe covering an outside of the inner pipe, wherein said double pipe is used in a vacuum chamber having a vacuum atmosphere; and

A1
a discharge mechanism for discharging fluid in a space between the inner pipe and the outer pipe.

2. (Cancelled)

3. (Currently Amended) The structure according to claim 1, wherein the inner pipe or the outer pipe has a bellows structure or coil shape.

4. (Cancelled)

5. (Original) The structure according to claim 1, wherein the inner pipe in the outer pipe includes a plurality of inner pipes.

6. (Original) The structure according to claim 1, wherein said double pipe keeps a vacuum space between the inner pipe and the outer pipe.

7. (Original) The structure according to claim 1, wherein the inner pipe is formed from a flexible resin material.

8. (Currently Amended) The structure according to claim 1, wherein the inner pipe is formed from a resin material having a different flexibility than a material of the outer pipe.

A1
9. (Original) The structure according to claim 1, wherein the outer pipe is formed from a resin material nearly free from degassing.

10. (Original) The structure according to claim 1, wherein the outer pipe is thinner than the inner pipe.

11. (Currently Amended) The structure according to claim 1, wherein the outer pipe has a thickness of about 10 μm to about 100 μm .

12. (Withdrawn) A pipe structure comprising:
a double pipe having at least one inner pipe and/or at least one electric wire and a resin outer pipe covering outsides of the inner pipe and/or the electric wire; and
a discharge mechanism for discharging fluid in a space between the inner pipe and/or the electric wire and the outer pipe.

13. (Withdrawn) The structure according to claim 12, wherein the outer pipe covers the outsides of the inner pipe and/or the electric wire at once.

14. (Withdrawn) The structure according to claim 13, wherein the inner pipe and/or the electric wire in the outer pipe is one-dimensionally aligned in a direction in which flexural rigidity in a bending direction is low.

15-25. (Cancelled)

A1
26. (New) A pipe structure comprising:

a double pipe having a resin inner pipe and a resin outer pipe covering an outside of the inner pipe;

a discharge mechanism for discharging fluid in a space between the inner pipe and the outer pipe; and

a stage in a vacuum chamber having a vacuum atmosphere,
wherein said double pipe is coupled to the stage.

27. (New) An alignment apparatus comprising:

a pipe structure; and

a stage coupled to the pipe structure and movable for alignment,

wherein the pipe structure has a double pipe having a resin inner pipe and a resin outer pipe covering an outside of the inner pipe, and a discharge mechanism for discharging fluid in a space between the inner pipe and the outer pipe, wherein said double pipe is used in a vacuum chamber having a vacuum atmosphere.

28. (New) An electron beam lithography apparatus comprising:

an alignment apparatus which aligns a substrate, wherein the alignment apparatus comprises a pipe structure; and

a stage coupled to the pipe structure and movable for alignment,
wherein the pipe structure has a double pipe having a resin inner pipe and a resin outer pipe covering an outside of the inner pipe, and a discharge mechanism for discharging fluid in a space between the inner pipe and the outer pipe, wherein said double pipe is used in a vacuum chamber having a vacuum atmosphere.

29. (New) An exposure apparatus comprising:

an alignment apparatus which aligns a substrate, wherein the alignment apparatus comprises a pipe structure; and

a stage coupled to the pipe structure and movable for the alignment,
wherein the pipe structure has a double pipe having a resin inner pipe and a resin outer pipe covering an outside of the inner pipe, and a discharge mechanism for discharging fluid in a space between the inner pipe and the outer pipe, wherein said double pipe is used in a vacuum chamber having a vacuum atmosphere.

30. (New) The apparatus according to claim 29, wherein an F₂ laser or an Ar₂ laser is used as a light source.

31. (New) A semiconductor device manufacturing method comprising the steps of:
installing manufacturing apparatuses for performing various processes,
including an exposure apparatus, in a semiconductor manufacturing factory, the exposure
apparatus comprising an alignment apparatus which aligns a substrate, wherein the alignment
apparatus comprises a pipe structure and a stage coupled to the pipe structure and movable for
the alignment, wherein the pipe structure has a double pipe having a resin inner pipe and a
resin outer pipe covering an outside of the inner pipe, and a discharge mechanism for
discharging fluid in a space between the inner pipe and the outer pipe, wherein said double
pipe is used in a vacuum chamber having a vacuum atmosphere; and

A

manufacturing a semiconductor device by using the manufacturing apparatuses
in a plurality of processes.

32. (New) The method according to claim 31, further comprising the steps of:
connecting the manufacturing apparatuses by a local area network; and
communicating information about at least one of the manufacturing
apparatuses between the local area network and an external network outside the
semiconductor manufacturing factory.

33. (New) The method according to claim 32, further comprising performing one of
(i) accessing a database provided by a vendor or user of the exposure apparatus via the
external network to obtain maintenance information of the manufacturing apparatus by data
communication, and (ii) production management by data communication between the

semiconductor manufacturing factory and another semiconductor manufacturing factory via the external network.

A1
34. (New) A maintenance method for an exposure apparatus that is installed in a semiconductor manufacturing factory and comprises an alignment apparatus which aligns a substrate, wherein the alignment apparatus comprises a pipe structure and a stage coupled to the pipe structure and movable for the alignment, wherein the pipe structure has a double pipe having a resin inner pipe and a resin outer pipe covering an outside of the inner pipe, and a discharge mechanism for discharging fluid in a space between the inner pipe and the outer pipe, wherein the double pipe is used in a vacuum chamber having a vacuum atmosphere, said method comprising the steps of:

causing a vendor or user of the exposure apparatus to provide a maintenance database connected to an external network of the semiconductor manufacturing factory;

authorizing access from the semiconductor manufacturing factory to the maintenance database via the external network; and

transmitting maintenance information accumulated in the maintenance database to the semiconductor manufacturing factory via the external network.

35. (New) The exposure apparatus according to claim 29, further comprising a display, a network interface, and a computer for executing network software, wherein maintenance information of the exposure apparatus can be communicated via the computer network.

36. (New) The exposure apparatus according to claim 35, wherein the network software is connected to an external network of a factory where the exposure apparatus is installed, provides on said display a user interface for accessing a maintenance database provided by a vendor or user of the exposure apparatus, and enables obtaining information from the database via the external network.

37. (New) A pipe structure comprising:

A
a double pipe having a resin inner pipe and a resin outer pipe covering an outside of the inner pipe; and

a discharge mechanism for discharging fluid in a space between the inner pipe and the outer pipe,

wherein said double pipe is connected to a stage.

38. (New) The structure according to claim 37, wherein the stage is in a chamber having an inert atmosphere.

39. (New) A pipe structure comprising:

a double pipe having a resin inner pipe and a resin outer pipe covering an outside of the inner pipe; and

a discharge mechanism for discharging fluid in a space between the inner pipe and the outer pipe,

wherein the double pipe is in a chamber, pressure in the chamber is less than pressure of atmosphere in a space between the inner pipe and outer pipe, and the pressure of atmosphere in the space between the inner pipe and outer pipe is less than pressure in the inner pipe.

40. (New) A semiconductor manufacturing factory comprising:

A
manufacturing apparatuses for performing various processes including an exposure apparatus comprising an alignment apparatus which aligns a substrate, wherein the alignment apparatus comprises a pipe structure and a stage coupled to the pipe structure and movable for the alignment, wherein the pipe structure has a double pipe having a resin inner pipe and a resin outer pipe covering an outside of the inner pipe, and a discharge mechanism for discharging fluid in a space between the inner pipe and the outer pipe, wherein said double pipe is used in a vacuum chamber having a vacuum atmosphere;

a local area network for connecting said manufacturing apparatuses; and
a gateway which allows the local area network to access an external network outside the factory,

wherein information about at least one of said manufacturing apparatuses can be communicated.